

WHAT IS CLAIMED IS:

1. A light emitting diode lamp comprising:

at least one light emitting diode chip; and

a convex lens through which rays of light emitted

5 from the at least one light emitting diode chip pass,  
wherein

the convex lens has two different curved surfaces  
on both sides of a plane orthogonal to a light emitting  
surface of the light emitting diode chip or to an extension  
10 of the light emitting surface and extending off a center of  
the light emitting surface, and

one of the curved surfaces of the convex lens  
refracts outgoing rays of light from the light emitting  
diode chip more greatly than the other of the curved  
15 surfaces of the convex lens does.

2. The light emitting diode lamp as defined in Claim  
1, wherein

the plane extending off a center of the light  
20 emitting surface is orthogonal to the extension of the  
light emitting surface of the light emitting diode chip and  
does not intersect with the light emitting diode chip.

3.           The light emitting diode lamp as defined in Claim 1, comprising more than one light emitting diode chips, which are arrayed in one direction.

5    4.           The light emitting diode lamp as defined in Claim 1, wherein

              said at least one light emitting diode chip is molded by resin having a light absorption band in wavelengths other than a peak wavelength of rays of light emitted by the light emitting diode chip, and the resin  
10               constitutes the convex lens.

5.           The light emitting diode lamp as defined in Claim 1, wherein

15               said at least one light emitting diode chip is mounted on a black surface-treated lead frame.

6.           The light emitting diode lamp as defined in Claim 1, further comprising

20               a reflection cup surrounding at least a part of a periphery of the light emitting diode chip, and an inner peripheral surface of the reflection cup is black surface-treated.

7. The light emitting diode lamp as defined in Claim 1, wherein

black-colored resin is mounted on a lead frame on which the light emitting diode chip is mounted, the black-colored resin being positioned behind the light emitting diode chip.

8. A light emitting diode display unit comprising the light emitting diode lamp as defined in Claim 1.

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9. The light emitting diode lamp as defined in Claim 1, wherein

at least one of said two curved surfaces of the convex lens comprises a plurality of curved surfaces different in shape.

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10. The light emitting diode lamp as defined in Claim 9, wherein

the plurality of curved surfaces include a curved surface on one side and a curved surface on the other side of a plane that is orthogonal to the extension of the light emitting surface of the light emitting diode chip and that does not intersect with the light emitting diode chip.

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11. The light emitting diode lamp as defined in Claim 9, comprising more than one light emitting diode chips, which are arrayed in one direction.

5 12. The light emitting diode lamp as defined in Claim 9, wherein

the light emitting diode chips are molded by resin having a light absorption band in wavelengths other than a plurality of wavelength peaks of rays of lights  
10 emitted by the light emitting diode chips, and the resin constitutes the convex lens.

14. The light emitting diode lamp as defined in Claim 9, further comprising

15 a reflection cup surrounding at least a part of a periphery of the light emitting diode chip, and an inner peripheral surface of the reflection cup is black surface-treated.

20 15. The light emitting diode lamp as defined in Claim 9, wherein

black-colored resin is mounted on a lead frame on which the light emitting diode chip is mounted, the black-colored resin being positioned behind the light emitting  
25 diode chip.

16. A light emitting diode display unit comprising the light emitting diode lamp as defined in Claim 9.